

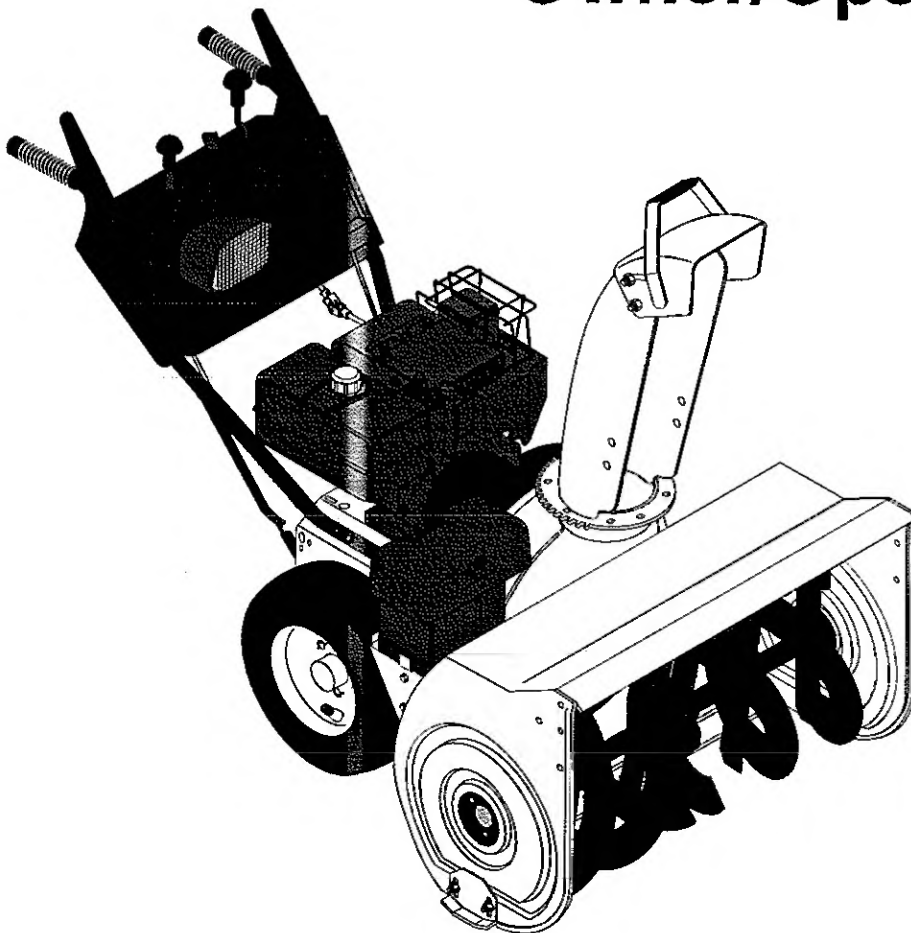


- (GB) ENGLISH
- (F) FRANÇAIS
- (D) DEUTSCH
- (I) ITALIANO
- (N) NORSK
- (S) SVENSKA
- (SF) SUOMI

Ariens®

Sno-Thro®

Owner/Operator Manual



924
SERIES

MODELS

- 924318 - ST824
- 924323 - ST1024 SHO
- 924324 - ST1128LE
- 924325 - ST1132LE
- 924326 - ST1336LE



Ariens Company
655 West Ryan Street
P.O. Box 157
Brillion, Wisconsin 54110-0157
Telephone (920) 756-2141
Facsimile (920) 756-2407
USA

MODEL CERTIFICATE OF CONFORMITY ISSUED BY THE MANUFACTURER
CERTIFICAT DE CONFORMITÉ DU MODÈLE DÉLIVRÉ PAR LE FABRICANT
MODELL-KONFORMITÄTSBESCHEINIGUNG AUSGESTELLT DURCH DEN HERSTELLER
MODELCERTIFICAAT VAN OVEREENSTEMMING AFGEGEVEN DOOR DE FABRIKANT
CERTIFICATO DI CONFORMITÀ DEL MODELLO RILASCIATO DAL PRODUTTORE
CERTIFICADO DE CONFORMIDAD DEL MODELO PROVISTO POR EL FABRICANTE
MODEL KONFORMITETS ERKLLÆRING UDSTEDT AF FABRIKANTEN
MODELLSERTIFIKAT FOR OVERENSSTEMMELSE UTSTEDT AV FABRIKANT TILLVERKARENS
TILLVERKARENS MODELLCERTIFIKAT OM ÖVERENSSTÄMMELSE
VALMISTAJAN ANTAMA VAKUUTUS MALLIN MÄÄRÄYSTEN MUKAISUUDESTA

We the undersigned, - Je soussigné, - Mit meiner Unterschrift - De ondergetekende, - Il sottoscritto, - El abajo firmante - Undertegnede, -
Undertecknaren av detta dokument, - Me, allekirjoittaneet,
ARIENS COMPANY, certify that the Sno Thrower - certifie que le chasse-neige - bestätige ich daß die Schneefräse - certifica che lo
sgombraneve bevitner at snøfreseren - intygar att snöslungan - vakuutamme, että lumilinko:

Category: **WALK BEHIND SNO THROWERS**

Make and Trade Name: **ARIENS**

Model:	924318	924323	924324	924325	924326
Serial # Range: From – To	000500 – and up	000101 – and up	000101 – and up	000101 – and up	000101 – and up

conform to the specifications of directive 98/37/EC, and EC directive (EMC) 89/336/EEC as amended by EC directive 92/31/EEC.
sont conformes aux spécifications de la directive 98/37/EC et de la directive EC (EMC) 89/336/EEC modifiée par la directive EC 92/31/EEC.
den Spezifikationen der Direktive 98/37/EC, sowie der EU-Direktive (EMC) 89/336/EEC, modifiziert durch die EU-Directive 92/31/EEC, entspricht.
in overeenstemming zijn met de specificaties van richtlijn 98/37/EG, en EC richtlijn (EMC) 89/336/EEC zoals gewijzigd door EC richtlijn 92/31/EEC.
sono conformi alla direttiva CE 98/37 e la direttiva CE (EMC) CEE 89/336, emendata dalla direttiva CEE 92/31.
conforme a las especificaciones de la directiva 98/37/CEE modificada en las directivas 91/368/CEE, 93/44/CEE y 93/68/CEE, y la directiva EC
(EMC) 89/336/EEC reformada por la directiva EC 92/31/EEC.
opfylder specifikationerne i direktiv 98/37/EC og EC direktiv (EMC) 89/336/EEC med ændringer i EC direktiv 92/31/EEC.
Enheten oppfyller spesifikasjonene i direktiv 98/37/EC, og EC direktiv (EMC) 89/336/EEC med endringer i EC direktiv 92/31/EEC.
är i överensstämmelse med specifikationerna i direktiv 98/37/EC, och EC direktiv (EMC) 89/336/EEC med ändringar i EC direktiv 92/31/EEC.
On valmistettu 98/37/EC, mukään. Ja neuvostori määräysten, 84/538/EEC tarkennettu 87/252/EEC, 83/180/EEC ja 88/181/EEC mukaan, ja EC
määräysten (EMC) 89/336/EEC tarkennettu määräysten EC 92/31/EEC mukaan.

July, 1998
Date/Datum/Data/
Fecha/Dato/Päiväys

Manager of Product Conformance
Position/Qualité/Stilling/Functie/Qualifica/P
uesto/Stilling/Funktie/Titel/Arvo

Signature/Unterschrift/Handtekening/Firma/
Underskrift/Underskrift
Handlekening/Underskrift/Allekirjoitus

CONTROLS AND FEATURES

ENGLISH

1. Wheel Drive Clutch Lever
2. Attachment Clutch Lever
3. Engine Ignition and Key
4. Primer Bulb
5. Choke
6. Throttle
7. Speed Selector
8. Recoil Starter Handle
9. Deflector Remote
10. Chute Crank
11. Discharge Chute Deflector
12. Discharge Chute
13. Auger
14. Impeller
15. Scraper Blade
16. Runner(s)
17. Headlight

FRANÇAIS

1. Levier d'embrayage des roues
2. Levier d'embrayage du rotor/turbine
3. Contact et clé
4. Poire d'amorçage
5. Starter
6. Manette des gaz
7. Sélecteur de vitesses
8. Poignée du démarreur à cordon
9. Commande à distance du déflecteur
10. Manivelle de la goulotte
11. Déflecteur de la goulotte
12. Goulotte de décharge
13. Rotor
14. Turbine
15. Lame racleuse
16. Patin(s)
17. Phare

DEUTSCH

1. Fahrtriebskupplungs-Hebel
2. Gerätekupplungs-Hebel
3. Zündschalter und Zündschlüssel
4. Vorpumpball
5. Choke
6. Gashebel
7. Gangwähler
8. Zugseilstarter-Griff
9. Prallblech-Ferneinstellung
10. Auswurfschacht-Drehgriff
11. Auswurfschacht-Prallblech
12. Auswurfschacht
13. Frässhnecke
14. Laufrad
15. Schaber
16. Kufe(n)
17. Scheinwerfer

ITALIANO

1. Leva della frizione di comando trazione
2. Leva della frizione dell'attrezzatura
3. Accensione motore e chiavetta
4. Pompetta di innesco
5. Starter
6. Acceleratore
7. Cambio
8. Maniglia dell'avviamento a strappo
9. Comando a distanza del deflettore
10. Manovella dello scivol
11. Deflettore dello scivolo di scarico
12. Scivolo di scarico
13. Coclea
14. Girante
15. Raschiatore lama
16. Suole
17. Faro anteriore

NORSK

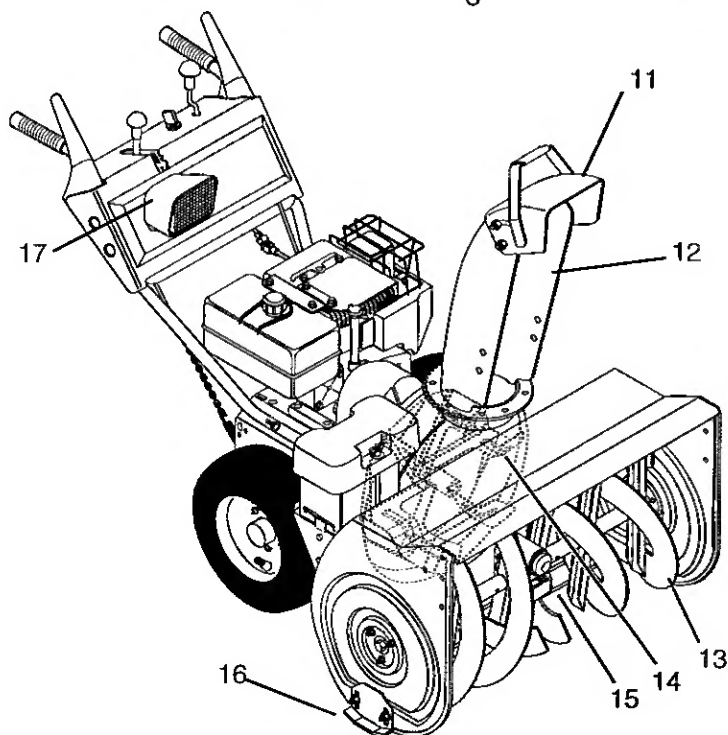
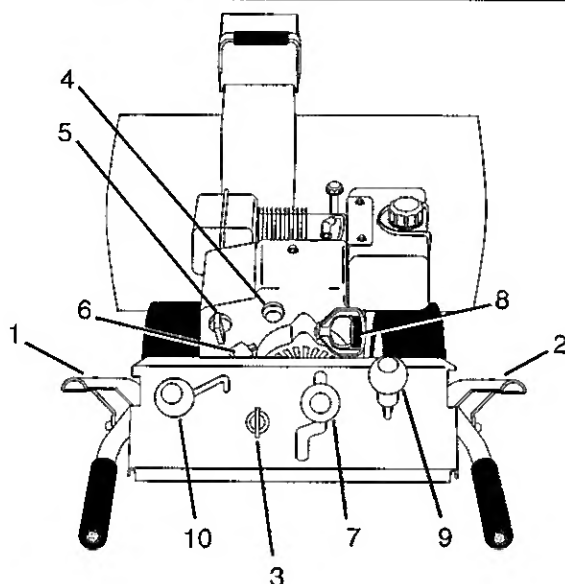
1. Friksjonsclutchspak
2. Redskapsclutchspak
3. Ténning og nøkkel
4. Fødepumpe
5. Choke
6. Gass
7. Hastighetsvelger
8. Starterhåndtak
9. Fjernkontrollert deflektor
10. Svelv for utkasterut
11. Deflektor på utkasterut
12. Utkasterut
13. Skovler
14. Drev
15. Skrapeblad
16. Meie(r)
17. Frontlykt

SVENSKA

1. Hjulens kopplingsgrepp
2. Skovlarnas kopplingsgrepp
3. Tändlås och nyckel
4. Flödarknapp
5. Choke
6. Gasreglage
7. Hastighetsväljare
8. Startgrepp
9. Stänkskyddsreglage för fjärrstyning
10. Rotationsreglage för utkast
11. Stänkskydd
12. Utkaströr
13. Skovelhjul
14. Skruv
15. Skrapblad
16. Med(-ar)
17. Strålkastare

SUOMI

1. Vetopyörin kytkinkahva
2. Lisälaitteiden kytkinkahva
3. Virtalukko ja avain
4. Esisyöttöpumppu
5. Kuristin
6. Kaasu
7. Nopeudenvalitsin
8. Käynnistimen kädensija
9. Suuntain - etäohjattu
10. Suuntain kampi
11. Poistosuulakkeen suuntain
12. Poistosuulake
13. Ruuviakseli
14. Impelleri
15. Raaputinterä
16. Suojalevyt
17. Ajovalo



OS0590

Figure 1

OS0580

OWNER/OPERATOR MANUAL TABLE OF CONTENTS

SNO-THRO MODELS

Model Number 924318
ST824, 8 HP 24"

Model Number 924325
ST1132LE, 11 HP 32"

Model Number 924323
ST1024, 10 HP 24"

Model Number 924326
ST1336LE, 13 HP 36"

Model Number 924324
ST1128LE, 11 HP 28"

LANGUAGES

GB English	1
F French	17
D German	33
I Italian	49
N Norwegian	65
S Swedish	81
SP Finnish	97

SECTION 1: INTRODUCTION



CE Certificate	Inside Front Cover
Controls and Features	i
The Manual	2
Service and Replacement Parts	2
Publication and Service Parts List	2
Product Registration	2
Dealer Delivery	2
Disclaimer	2

SECTION 2: SAFETY



Safety Alert Symbol	3
Signal Words	3
Practices and Laws	3
Required Operator Training	3
Safety Decals and Locations	3
Safety Rules	4

SECTION 3: OPERATION



Standard Controls	5
Pre Start	6
Starting and Shut Off	7
Throwing Snow	7

SECTION 4: GENERAL MAINTENANCE



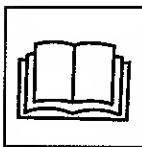
Service Position	8
Filling Fuel Tank and Fuel Shut-Off Valve	8
Engine and Muffler Guard	9
Traction Drive Belt	10
Attachment Drive Belt	10
Shear Bolts	11
Tire Pressure	11
Friction Wheel	11
Auger Gearcase	11
Lubrication Locations	12
Battery	12
Adjustments	13
Transport and Storage	14
Accessories	15
Maintenance Schedule	15
Trouble Shooting	15
Specifications	16



WARNING

The engine exhaust from this product contains chemicals known to the State of California to cause cancer, birth defects or other reproductive harm.

SECTION 1: INTRODUCTION



THE MANUAL

Before operation of unit, carefully and completely read your manuals. The contents will provide you with an understanding of safety instructions and controls during normal operation and maintenance. All reference to left, right, front, or rear are given from operator standing in operation position and facing the direction of forward travel.



SERVICE AND REPLACEMENT PARTS

When ordering replacement parts, publications, or making service inquiries, know the Model and Serial numbers of your unit, engine, clutch, etc.

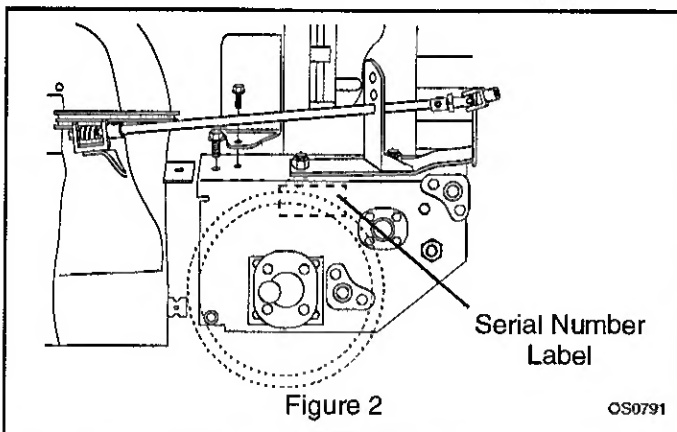
Unit numbers are located on the product registration form in the unit literature package. They are printed on a serial number label, located on the frame of your unit (Figure 2).

Transfer model & serial number label from product registration here.

Record applicable model and serial numbers here:

Unit _____

Engine _____



PUBLICATION & SERVICE PARTS LIST

Order the Following parts through your Dealer:

Part No.	Qty.	Description
00012300A	1	Repair Manual
02474800	1	Parts Manual
02475200	1	Owner/Operator Manual
21526400	1	Spark Plug
07208600	1	Impeller Belt (318)
07210800	1	Impeller Belt (323)
07213000	1	Impeller Belt (324,325,326)
07206600	1	Traction Belt (318,323)
07213100	1	Traction Belt (324-326)

Mail Requests to:

Ariens Company 655 West Ryan Street P.O. Box 157
Brillion, WI, USA 54110-0157



PRODUCT REGISTRATION

A warranty registration card must be filled out by the dealer, signed, and returned at time of sale. This form activates the warranty. The replacement of any part on this vehicle with anything other than authorized replacement part may adversely affect the performance, durability, or safety of this unit and may void the warranty. Claims meeting requirements during limited warranty period will be honored.

To guarantee full warranty service, make sure your registration card has been returned.

DEALER DELIVERY

Dealer should:

1. Check to make sure all Dealer Preparations have been properly completed.
2. Fill out Original Purchaser Registration Card and return the card to Ariens Company.
3. Explain Limited Warranty Policy.
4. Explain recommended lubrication and maintenance. Advise customer on adjustments.
5. Instruct customer on controls and operation of unit. Discuss and emphasize the Safety Precautions. Give customer Product Manuals. Advise customer to thoroughly read and understand them.

DISCLAIMER

Ariens Company is hereinafter referred to as Ariens. Ariens reserves the right to discontinue, make changes to, and add improvements upon its products at any time without public notice or obligation. Ariens disclaims liability for any claims or damages, whether regarding property, personal injury or death arising out of the use of unauthorized replacement parts.

The descriptions and specifications contained in this manual were in effect at printing. Equipment described within this manual may not be identified as either standard or optional. Illustrations may not be applicable to your unit.

Customer Note: Your Dealer has been provided complete setup and preparation instructions which must be completed prior to you taking delivery of this unit. The dealer is required to review important information in this manual with you before or upon delivery of the unit or attachment.

SECTION 2: SAFETY



SAFETY ALERT SYMBOL

This is a safety alert symbol. It means:

- **ATTENTION!**
- **YOUR SAFETY IS INVOLVED!**

When you see this symbol:

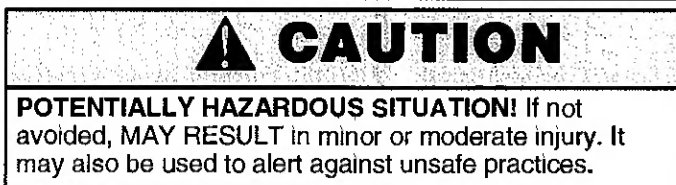
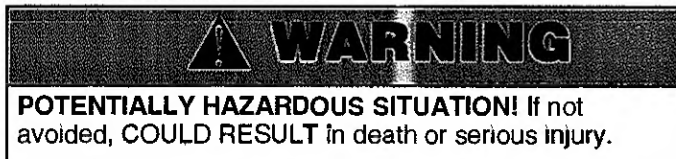
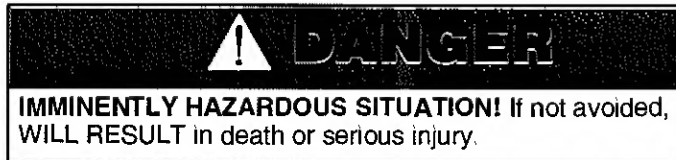
- **BECOME ALERT!**
- **OBEY ITS MESSAGE!**

SIGNAL WORDS

The safety alert symbol is used with the signal words **▲DANGER**, **▲WARNING** and **▲CAUTION** and colors to alert you to safety messages.

They are used in safety decals on the unit and with proper operation and procedures in this manual. They alert you to the existence and relative degree of hazards.

Understand the safety message. It contains important information about personal safety on or near the unit.



PRACTICES AND LAWS

Practice usual and customary safe working precautions, for the benefit of yourself and others. Understand and follow all safety messages. Be alert to unsafe conditions and the possibility of minor, moderate, or serious injury or death. Learn applicable rules and laws in your area.

REQUIRED OPERATOR TRAINING

Original purchaser of this unit was instructed by the seller on safe and proper operation. If unit is to be used by someone other than original purchaser; loaned, rented or sold, **ALWAYS** provide this manuals and any needed safety training before operation.

Notations

NOTE: General reference information for proper operation and maintenance practices.

IMPORTANT: Specific procedures or information required to prevent damage to unit or attachment.

SAFETY DECALS AND LOCATIONS

ALWAYS replace missing or damaged Safety Decals. Refer to Figure 3 for Safety Decal locations.

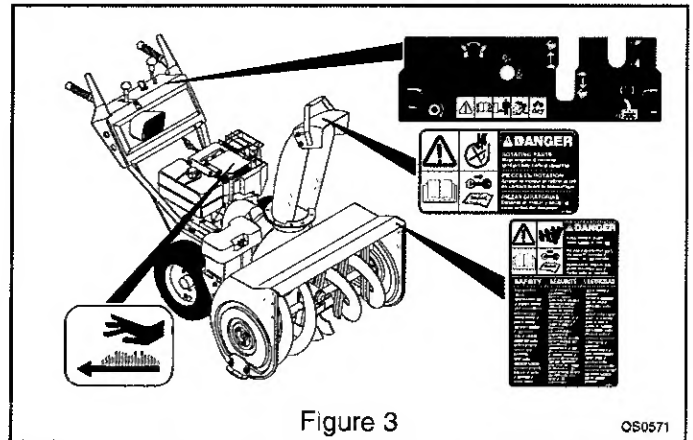
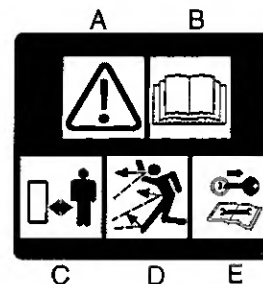


Figure 3



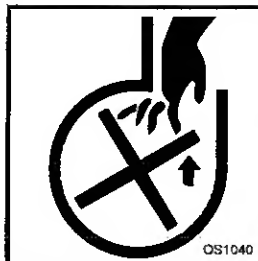
HOT SURFACES!

DO NOT touch parts which are hot from operation. **ALWAYS** allow parts to cool.



SAFETY INSTRUCTIONS

- Attention! Your safety is involved!
- Read Owner/Operator Manual.
- Keep people away from unit while operating.
- ALWAYS** stand clear of discharge area.
- Shut off engine, remove key, read manual before you unclog, adjust or repair unit.

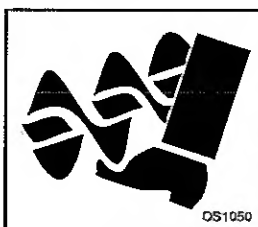


DANGER Rotating Parts!

ALWAYS Keep hands away from rotating parts.

DANGER Auger!

ALWAYS Keep feet away from rotating parts.



SAFETY

- Read operator's manual.
- Allow operation only by properly trained adult, never children.
- Stop engine and remove ignition key prior to leaving operator's position for any reason.
- Keep all controls, guards and safety devices properly serviced and functional.
- Never direct discharge towards persons or property that may be injured or damaged by thrown objects.

SAFETY RULES

Operation

Only Trained Adults may operate unit. Training includes actual operation.

Clear Area

ALWAYS keep area of operation clear of all toys, pets and debris. Thrown objects can cause injury.

Walk-Around Inspection

Inspect unit and work area before operation.

Avoid Entanglement

Keep safety devices and guards in place and functioning properly. NEVER modify or remove safety devices.

Speed Ranges

DO NOT clear snow at too fast a rate. DO NOT change engine governor setting or over speed the engine.

Visibility

ALWAYS operate unit when there is good visibility and light.

Slippery Surfaces

ALWAYS be sure of your footing. Never run during operation.

Avoid Falls

Avoid uneven work areas and any rough terrain.

Safe Distances

Keep children and people away from unit during operation.

Child Safety

Keep children out of work area and under the watchful care of an adult.

NO Drugs

NEVER operate after or during the use of medication, drugs or alcohol.

NO Alcohol

Complete and unimpaired attention is required when operating unit.

Safety Gear

Wear adequate winter gear, protective gloves and footwear. NEVER wear loose clothing, jewelry or long hair that may get caught in rotating parts. Protect eyes, face and head from objects that may be thrown from unit.

Thrown Objects

ALWAYS stand clear of discharge area when operating unit. Deflected materials can cause injury.

Avoid Entanglement

ALWAYS keep hands away from all rotating parts during operation.

ALWAYS keep feet away from all rotating parts during operation. Rotating parts can cut off body parts.

Adjustments

Remove Key, see maintenance manual to repair any damage. Adjust runners to clear any surface(s) safely.

Abnormal Vibrations

Disengage clutch, stop engine, remove Key and wait for all moving parts to stop before servicing, except where recommended.

Hot Surfaces

DO NOT touch parts which are hot. Allow parts to cool.

Exhaust Fumes

Fumes from the engine exhaust can cause death or serious injury. DO NOT run engine in an enclosed area.

Explosive Fuel

NEVER fill tank when engine is running, hot or unit is indoors.

Fuel is highly flammable and its vapors can explode. ONLY use approved RED fuel containers.

NO Smoking! NO Sparks! NO Flames!

Allow engine to cool before filling fuel tank.

Hazardous Slopes

DO NOT operate on steep slopes. DO NOT clear snow across the face of slopes.

Roll Away

NEVER leave unit unattended on a slope.

Parking

Remove the key when parking. Run unit a few minutes after throwing snow to prevent freeze-up of Impeller.

ALWAYS shut off engine and remove key to prevent unauthorized use before leaving unit.

Service

Check Clutch and Brake function often, see Safety System Section.

Storage

DO NOT store unit inside a building with fuel in the fuel tank where any ignition sources are present.

ALWAYS Clean unit before extended storage. See engine manual for proper storage.

Battery

Avoid Electric Shock. Objects contacting both battery terminals at the same time may result in injury and unit damage. DO NOT reverse battery connections.

Explosive Gases from battery can cause death or serious injury. Poisonous battery fluid contains sulfuric acid and its contact with skin, eyes or clothing can cause severe chemical burns.

No flames, No sparks, No smoking, near battery.

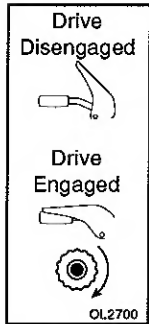
ALWAYS wear safety glasses and protective gear near battery.

DO NOT TIP battery beyond a 45° angle in any direction.

ALWAYS keep batteries out of reach of children.

STANDARD CONTROLS

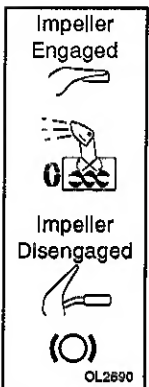
See Figure 1 for all Controls and Features locations.



Traction Drive Clutch - Left Hand Lever

Squeeze the Traction Drive Clutch Lever against the Handlebar to engage wheel drive for propelling unit. Forward speed will vary according to snow depth and moisture content

NOTE: For transport of unit to or from area to be cleared, press down on handlebars enough to raise front of unit slightly off surface and engage Traction Drive Clutch without engaging Attachment Drive Clutch.



Attachment Clutch - Right Hand Lever

Squeeze Attachment Clutch Lever against Handlebar to engage Impeller. Release Lever to disengage and brake Impeller

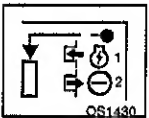
IMPORTANT: Check impeller to be sure it is not frozen. If belt squeals when the Attachment Clutch Lever is engaged, the Impeller is frozen. Immediately release the Attachment Clutch Lever and move the unit to a heated area to thaw.

Ignition Switch

(Models 318, 323)

Key Switch has two positions:

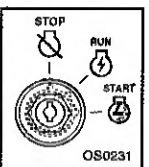
1. "Stop"
2. "Run"



(Models 324, 325, 326 only)

The Ignition Switch is operated by a removable Key. It has three positions:

1. "Stop"
2. "Run"
3. "Start"



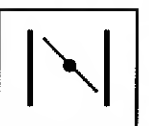
Primer Bulb

Push the Primer Bulb in to add fuel for easier engine start.

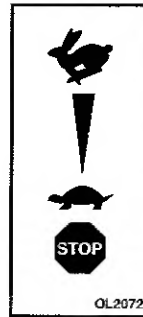


Choke Control Knob

When turned to "Choke Closed" position, the Choke Control chokes off air to engine for easier start. When turned to "Choke Open", this allows for normal operation.



IMPORTANT: Gradually open choke, after engine starts.



Throttle

The Throttle controls the engine speed. To increase or decrease the engine speed position control by adjusting to:

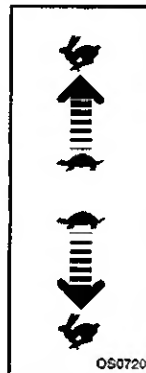
1. "Fast" (normal or warm starts)
2. "Part-Throttle"
3. "Slow" (cold weather starts)
4. "Stop" (engine is off)

Electric Starter (Optional)

The Electric Starter will start a properly choked and cranked engine when the key is turned to the "Start" position.

Speed Selector

The Speed Selector controls the unit travel in a forward or reverse direction when positioned in notch of speed.



Forward:

- (4) "Fast"
- (3) "Medium Fast"
- (2) "Medium Slow"
- (1) "Slow" (Best used for removing deep or hard packed snow)

Reverse:

- (1) "Slow"
- (2) "Fast"

IMPORTANT: Forward speed can be changed without declutching. DO NOT change motion from forward to reverse with clutch engaged.

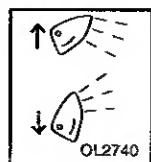
Recoil Starter Handle

When pulled, handle will turn engine over.

Discharge Chute Deflector

ALWAYS position Discharge Chute Deflector in safe direction and angle before starting engine.

IMPORTANT: If Chute Deflector does not stay in set position, adjust as directed in Adjustment Section, or repair before operation.



Deflector Remote

For operation push Deflector Remote Control knob forward to adjust Deflector downward. To adjust Deflector upward push Deflector Remote Control knob downward. Place Deflector into position at desired height before operation. DO NOT throw snow any higher than necessary.



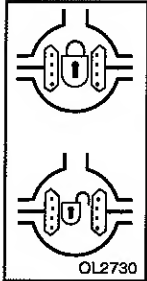
Discharge Chute

Discharge Chute rotates 230°.

Chute Crank Handle

Rotate the Chute with Discharge Chute Crank Handle.

IMPORTANT: DO NOT force frozen Chute controls. Start engine and run for 3-5 minutes to thaw. If still frozen, take to warm place until controls are free.



Differential Lock

Differential Lock knob is located on the Left Wheel Hub. With differential locked power is applied equally to both wheels.

To engage differential lock:

- Pull and turn knob to "Locked" position and release (knob will snap in place when positioned correctly).

To resume differential action for transport:

- Pull and turn knob to "Unlocked" position and release.

Scraper Blade

DO NOT allow Scraper Blade to wear or Auger / Impeller housing will become damaged.

Runners

For operation on gravel surface, lower Runners so that housing will not pick up gravel. On concrete, blacktop or packed snow surfaces raise Runners so that Scraper Blade scrapes clean. To reduce tendency of housing to ride up over heavy wet or hard-packed snow, remove Runners and reinstall with their narrow edge down.

Headlight

The Headlight (Optional) operates only when the engine is running. Adjust the Headlight: loosen the hardware, position light and retighten hardware.

NOTE: Lamp remains "On" at all times for longer lamp life. Lamp is more sensitive to fatigue failure when unlit than when lit.

PRE-START

Frozen Impeller

IMPORTANT: Before engine start check Impeller to be sure it is not frozen. With key in "Stop" position, squeeze Attachment Clutch Lever to Engaged position and pull Recoil Starter Handle. If Impeller is frozen, (cannot pull Starter Handle) move unit to a heated area and thaw to prevent possible damage.

Ambient Temperatures

Allow unit and engine to adjust to the outdoor temperatures before clearing snow.

Differential Lock

ALWAYS engage differential lock (located in left wheel hub) for best traction when throwing snow.

Function of Clutches

IMPORTANT: Check Clutch/Brake function before each use. If the Impeller does not stop quickly when the Attachment Clutch Lever is released or there is no noticeable increase in the Lever force before contacting the Handlebar, adjust as directed in the Adjustments Section, or repair before operation.

Interlock

Check by pressing down on Clutch Levers (engaging both clutches). Remove hand from Attachment Clutch Lever, attachment clutch should remain engaged until Traction Clutch Lever is released then both clutches must disengage.

Engine Fuel and Crankcase Oil

Check and add fuel if required. Check that the engine crankcase oil is full using dipstick. Refer to General Maintenance Section.

Runners

Check and adjust Runners. Allow 1/8" (3mm) between scraper blade and hard, smooth surface(s). Allow 1-1/4" (30mm) between scraper blade and uneven surface(s).

STARTING AND SHUT OFF

Electric Start

See Figures 1 and 5 for all Controls and Features locations.

1. Turn discharge chute straight ahead.
2. Push Primer Bulb 2 or 3 times for cold engine.

NOTE: When temperature is below -15° F (-26° C) additional priming may be needed.

3. Turn Choke control to "Choke Closed" position.

NOTE: A warm engine requires less choking than a cold engine.

4. Insert key into Ignition Switch.
6. Set throttle to "Fast" position.
7. Turn key to "Start" position to crank engine and release when engine starts.
8. Open choke slowly by gradually turning control to "Choke Open" position.
9. Set throttle to "Part Throttle" or "Slow" position for adaptation to Ambient temperature or transport. Once achieved, set throttle to "Fast" position for normal operation.
10. Select Speed Control range and direction.
11. Engage Attachment Clutch - Right Hand Lever.
12. Engage Traction Drive Clutch - Left Hand Lever.

Manual Start

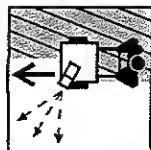
1. Follow the previous starting steps 1-6.
2. Push key into "Run" position.
3. Grasp starter handle and pull rope out slowly until it pulls harder, this is compression stroke, let rope rewind slowly.
4. Pull rope with a rapid continuous full arm stroke. Let rope rewind slowly.

IMPORTANT: DO NOT let Starter Handle snap against Starter.

5. Repeat until engine starts. (If engine does not start, refer to Engine Manual.)
6. Follow the previous Starting steps 8-12.

Shut Off

1. Release Traction Drive Clutch Lever and allow unit to come to a complete stop.
2. Run Impeller a few minutes after use to prevent freeze-up of Impeller.
3. Release Attachment Clutch Lever and wait for all moving parts to come a complete stop.
4. Move Throttle to the "Slow" Position.
5. Pull key into "Stop" position.
6. Remove key.



THROWING SNOW

NOTE: Attachment clutch should be engaged before wheel drive clutch when throwing snow.

To clear an area, run unit in an overlapping series of paths. For large areas; start in the middle and throw snow to each side, so snow is not cleared more than once.

ALWAYS direct snow away from area to be cleared and with direction of the wind.

IMPORTANT: DO NOT overload unit capacity by attempting to clear snow at too fast a rate.

 CAUTION	
	IMMEDIATELY RELEASE BOTH CONTROL LEVERS TO STOP UNIT in an emergency.
	Stop Engine, remove Key and wait for all rotating parts to stop before leaving operators position.

SECTION 4: GENERAL MAINTENANCE

Ariens Dealers will provide any service or adjustments which may be required to keep your unit operating at peak efficiency. Should engine service be required, contact an Ariens dealer or an authorized engine manufacturer's service center.

SERVICE POSITION

Place unit on a flat level surface. Tip unit forward onto front of Impeller housing for service. Assure unit is secure and will not tip over. Strap and clamp onto bench if needed.

CAUTION

Before unit is tipped up onto housing, remove enough fuel and battery electrolyte so that no spillage will occur.

FILLING FUEL TANK

WARNING



FLAMMABLE FUEL and its **EXPLOSIVE VAPORS** can result in death or serious injury.



Handle fuel with extreme care. **ALWAYS** use an approved fuel container.



No Smoking! No Lighted Materials!

No Open Flames!

Allow engine to cool before any service.

To add fuel to Fuel Tank:

1. **ALWAYS** place unit in open or well ventilated area.
2. Stop engine and allow to cool.
3. Clean Fuel Cap and surrounding area to prevent dirt from entering Fuel Tank (Figure 4).
4. Remove Cap.

IMPORTANT: DO NOT use gasohol or gasoline containing alcohol because alcohol will cause internal parts to deteriorate. See Engine Manual for correct type and grade of fuel.

5. Fill fuel tank to within 1/2" (1,2 cm) below bottom of filler neck with unleaded gasoline. Tank capacity is 1 gallon (3,8 liters).
6. Replace Fuel Cap and tighten.
7. **ALWAYS** clean up any spilled fuel.

FUEL SHUT-OFF VALVE

IMPORTANT: The unit is equipped with a gravity feed type of fuel system. If the Fuel Shut-Off Valve is not in the closed "Off" position, gasoline can leak out of the carburetor while the unit is being transported.

The unit engine Fuel Shut-Off Valve has 2 positions:

1. Closed "Off"
2. Open "On"

ALWAYS close or turn the Fuel Shut-Off Valve to the "Off" position for servicing, transporting or storing the unit.

The unit must have the Fuel Shut-Off Valve in the "Open" position for proper fuel delivery to the engine during normal operation (Figure 4).

Check the Fuel Shut-Off Valve frequently to assure it is in the proper position for operation or service.

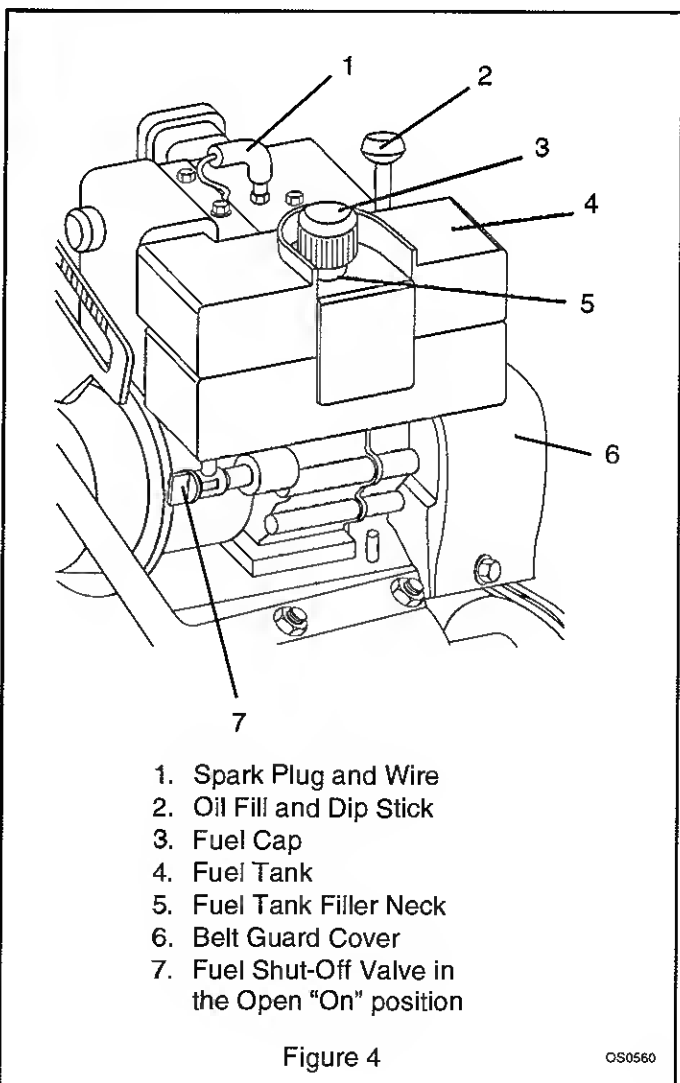


Figure 4

OS0560

ENGINE

WARNING



ACCIDENTAL ENGINE START UP can cause death or serious injury. **ALWAYS** stop engine, remove key, wait for moving parts to stop and remove wire from spark plug before adjusting or servicing.

Cooling

Engine is air cooled. Air must circulate freely around engine from Air Intake to cooling fins on cylinder head and block, to prevent overheating (Figure 5).

WARNING



HOT SURFACES can result in death or serious injury. **DO NOT** touch parts which are hot from operation. **ALWAYS** allow parts to cool.

Every 100 hours of operation or yearly (more often if conditions require) remove cooling shrouds and clean cooling fins. Clean external surfaces of engine of dust, dirt and oil deposits which can contribute to improper cooling. See Engine Manual.

IMPORTANT: **DO NOT** operate engine with cooling shrouds removed or engine overheating and damage will result.

Engine Oil Check

The engine crankcase oil should be checked daily or every 5 hours of operation. Oil level **MUST** be maintained in safe operating range on dipstick at all times or engine damage will result (See Engine Manual).

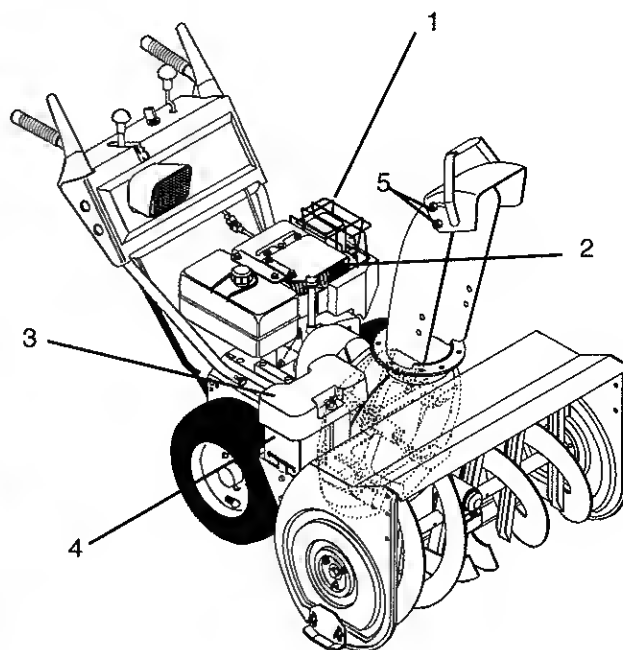
To Check:

1. Clean all debris away from around oil cap.
2. Remove oil cap and dipstick. Wipe oil off dipstick with a clean cloth. Replace dipstick until cap bottoms on tube. Remove dipstick again and observe oil level. Oil should be at the Full (F) mark.
3. If low, add oil and bring up to the Full (F) mark. **DO NOT** over fill. Oil Level must not exceed full (F) mark. Replace dipstick and cap.
4. Clean up any spilled oil.

Engine Oil Type	Ambient Temperature
SAE 5W30	Below 32° F (0° C)
SAE 30	Above 32° F (0° C)

Engine Oil Change

Change oil after first 5 hours of operation, thereafter change oil every 25 hours (more often if required).



1. Muffler Guard
2. Cooling Fins
3. Battery Cover
4. Battery
5. Discharge Chute Deflector Hardware

Figure 5

OS0580

NOTE: Run engine just prior to changing oil. Warm oil will flow more freely and carry away more contamination.

1. Drain crankcase by removing oil drain plug (see Engine Manual).
2. When oil has drained replace plug and refill engine crankcase with new oil of proper grade.
3. Recheck oil level with dipstick.

MUFFLER GUARD

WARNING



HOT SURFACES can result in death or serious injury. **DO NOT** touch parts which are hot from operation.

ALWAYS keep protective structures, guards, and panels in good repair, in place and securely fastened.

NEVER modify or remove the safety muffler Guard device (Figure 5).

TRACTION DRIVE BELT



WARNING



ROTATING PARTS can cut off body parts. Keep hands and feet away. Loose clothing, long hair or scarves can get caught in rotating parts and cause death or serious injury.

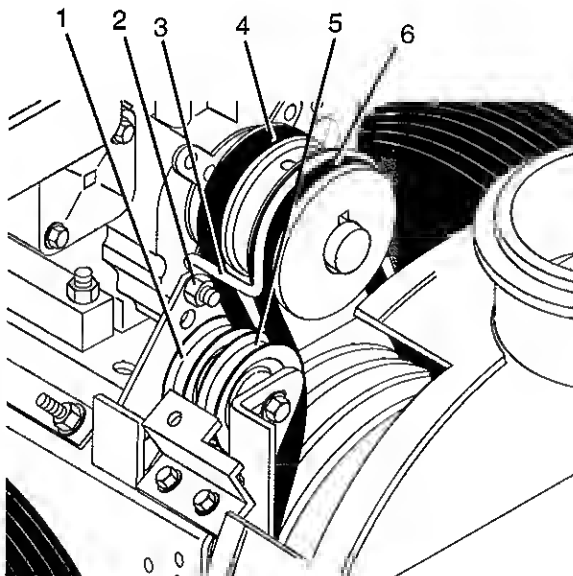
NOTE: Housing and frame must be tipped apart and attachment drive belt removed from engine sheave in order to change traction drive belt (Figure 6).

1. Pull idler away from belt and remove belt from idler pulley, engine and driven pulley (it may be necessary to turn engine pulley using rewind starter).
2. Rotate belt fingers out and away from belt and pulley by removing one cap screw and loosening the other.

IMPORTANT: Use care when rotating the belt fingers to prevent deformation of parts.

NOTE: To gain clearance engage traction clutch and if necessary pull back attachment idler arm clevis pin.

3. Replace traction drive belt and belt fingers in reverse order making sure pulleys align. If alignment is necessary, loosen engine pulley set screws, reposition pulley and retighten set screws. Check alignment of attachment driven pulley and align if necessary.



1. Traction Belt Idler
2. Cap Screw
3. Belt Finger
4. Attachment Belt Idler
5. Traction Drive Belt
6. Attachment Drive Belt

Figure 6

OS0600

ATTACHMENT DRIVE BELT

For Attachment Drive Belt Replacement (Figure 7):

1. Shut off engine and allow to cool completely.
2. Remove two screws securing belt guard to unit and remove belt guard cover.
3. Remove hardware fastening worm gear bracket to housing (Figure 13).
4. Loosen cap screws and carefully rotate belt fingers out and away from belt and pulley (Figure 6). Remove attachment drive belt (Figure 7) from engine pulley (it may be necessary to turn engine pulley using rewind starter).

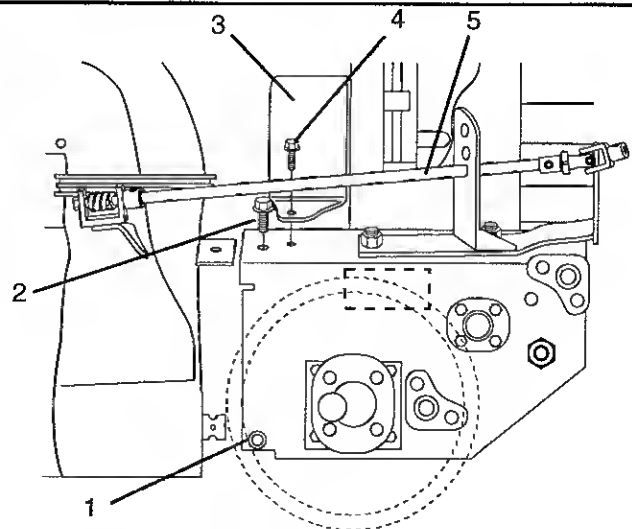
IMPORTANT: To avoid bending bottom cover, when tipping unit apart, support handlebars firmly or tip unit up on housing and remove bottom cover by removing four cap screws before separating unit.

5. Separate housing from unit. Remove cap screws securing housing to frame (one on each side). Tip housing and frame apart on pivot pin.
6. Remove attachment drive belt from sheave (hold brake away from belt).
7. Replace attachment drive belt in reverse order making sure sheaves align. If alignment is necessary, loosen attachment sheave set screws, reposition sheave and retighten set screws.
8. Replace worm gear bracket and adjust chute crank.



WARNING

IMPELLER BRAKE MUST DISENGAGE when clutch is engaged. Brake must be at least 1/16" (1,6 mm) to 1/8" (3,2 mm) minimum from belt when disengaged.



1. Pivot Pin
2. Housing Cap Screws
3. Belt Guard Cover
4. Bolt
5. Chute Crank Rod

Figure 7

OS0791

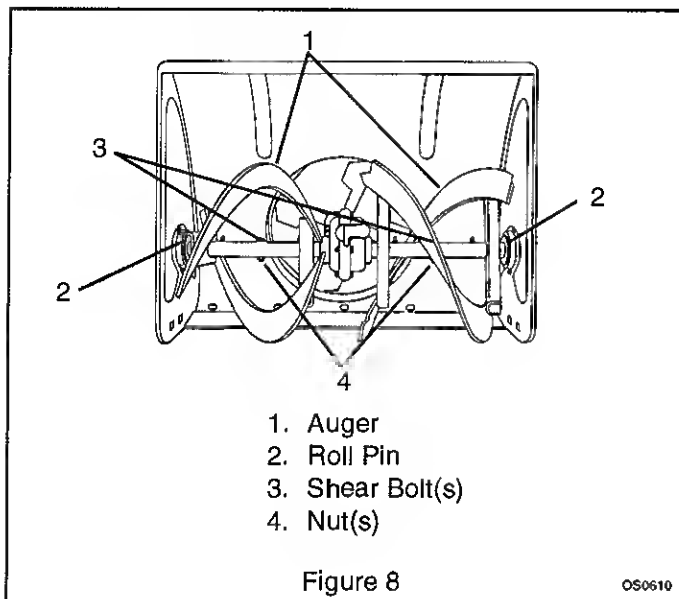
SHEAR BOLTS

IMPORTANT: Use only Ariens Shear Bolts for replacement. Use of any other type of shear bolt may result in severe damage to unit.

Occasionally a foreign object may enter the auger/impeller housing and jam the auger, breaking Shear Bolts (Figure 8) which secure the auger to the shaft. This allows auger to turn freely on the shaft preventing damage to gear drive.

For Replacement:

1. Slide auger outward against roll pin and align hole in shaft with hole in auger (holes in shaft for roll pins and Shear Bolts line up).
2. Drive Shear Bolt through hole (if Shear Bolt was broken this will drive remaining part from shaft).
3. Secure Shear Bolt with nut.

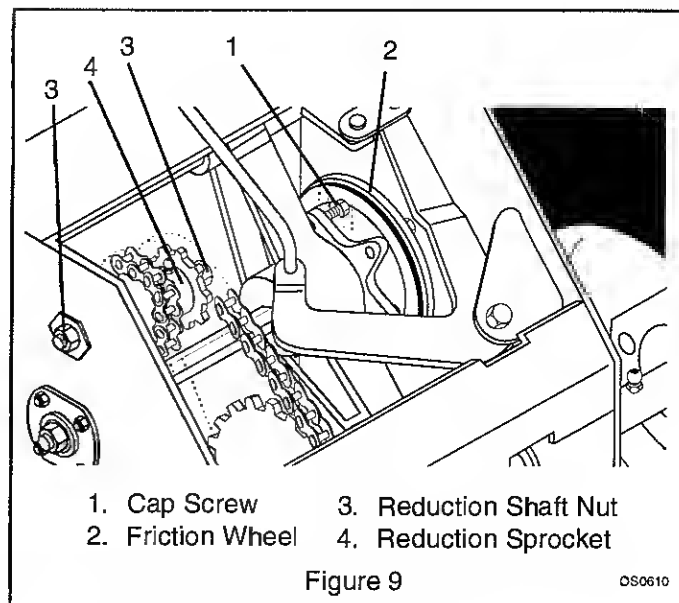


TIRE PRESSURE

Maintain the unit tire pressure at a maximum 20 PSI (138 kPa).

FRICTION WHEEL

1. To replace friction wheel, tip unit up onto housing on a flat level surface.
2. Remove bottom cover by removing four cap screws.
3. Place Speed Selector in first "1" position, depress Traction Clutch Lever to hold friction wheel and hub. Release traction clutch lever, remove cap screws (Figure 9), shift to third "3" position, and remove friction wheel.
4. Secure new friction wheel on hub with five cap screws and torque cap screws to 8-10 ft. lbs. (10,6-13,3 Nm)
5. Replace bottom cover.
6. Adjust Traction Drive Clutch (see Adjustments).



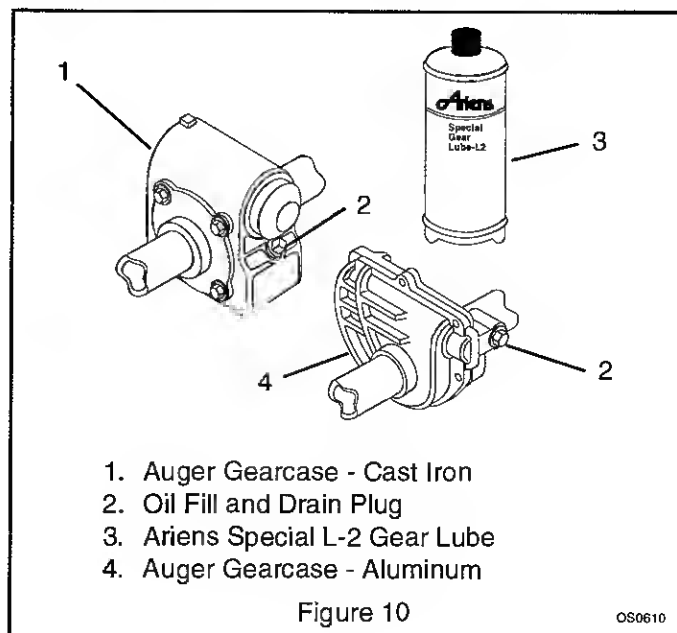
AUGER GEARCASE

IMPORTANT: Too much lubricant may cause excessive leakage. Too little lubricant will cause gear and/or bearing damage. Proper oil level must be maintained for operation.

Gear cases are filled to the correct level at the factory. Unless there is evidence of leakage, no additional lubricant should be required. Check for evidence of leakage every 25 hours of operation.

To insure adequate lube level:

1. Remove filler plug. Lubricant must be at least up to bottom of lube filler hole with unit resting on a level surface.
2. Add lubricant (Figure 10), if required. Allow oil to drain to level of plug and replace plug.
3. Use only Ariens special gear lube L-2 (Part Number 00008000).



LUBRICATION LOCATIONS

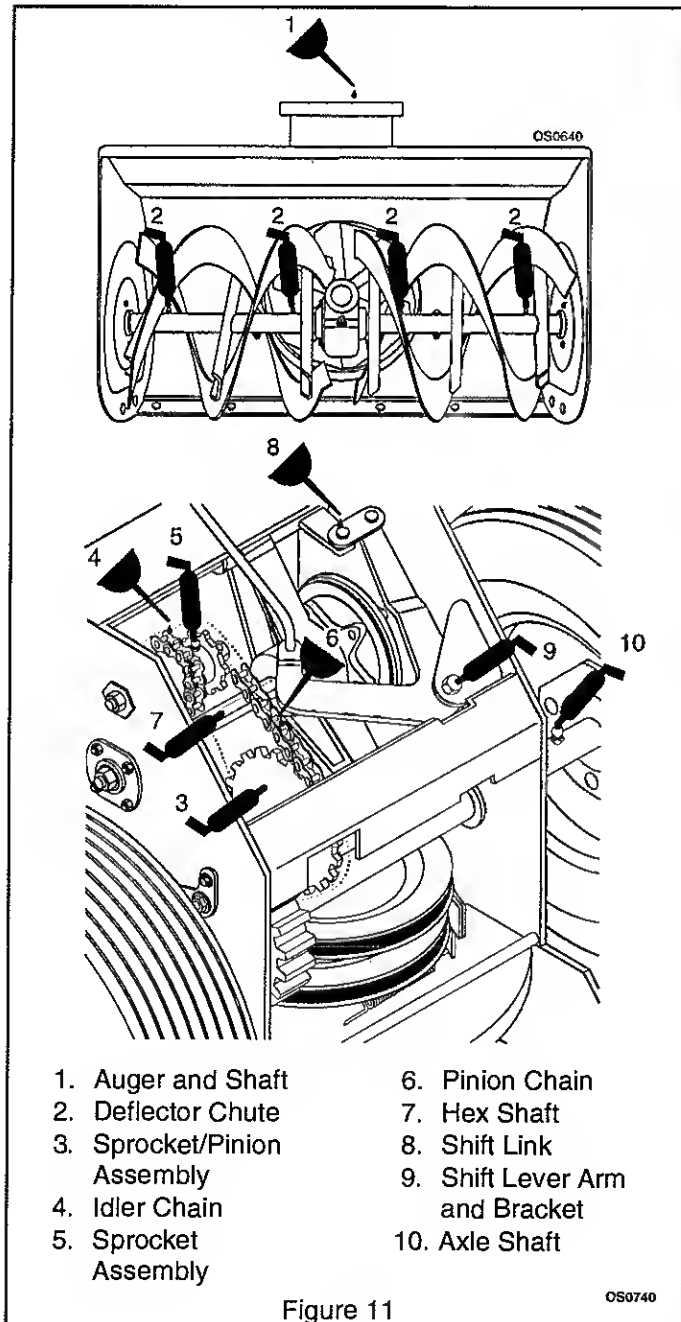
IMPORTANT: Wipe each fitting clean before and after lubrication.

NOTE: Use Ariens Multi-Purpose Grease (Part Number 000150) or Stens "00" Grease (Part Number 000367) at zerk fittings and oil at lubrication points.

Sno-Thro should be lubricated (Figure 11) at beginning of season or every 25 operating hours. See Maintenance Schedule.


IMPORTANT: DO NOT allow grease or oil to get on friction wheel, drive disc or belts.

NOTE: To grease auger shaft, remove shear bolt nuts, and shear bolts. Turn auger on shaft while applying grease at zerk fittings. Replace shear bolt per instructions in Shear Bolt Replacement.



BATTERY

When charging battery remove it from the unit first.




WARNING

ELECTRIC SHOCK may result in injury and/or damage to unit.

DO NOT allow objects to come into contact with both terminals at the same times.

REVERSE CONNECTIONS may result in sparks which can cause death or serious injury. ALWAYS connect positive (+) lead of charger to positive (+) terminal, and negative (-) lead to negative (-) terminal.

ALWAYS connect positive (+) cable FIRST, and negative (-) cable SECOND.



WARNING

EXPLOSIVE GASES from battery can cause death or serious injury. ALWAYS keep open flames, sparks, or smoking materials away from batteries.

POISONOUS BATTERY FLUID contains sulfuric acid and its contact with skin, eyes or clothing can cause severe chemical burns. ALWAYS wear safety glasses and protective gear near battery.

DO NOT TIP any battery beyond a 45° angle in any direction.

ALWAYS KEEP BATTERIES OUT OF REACH of children.

Battery Electrolyte First Aid

Follow First Aid directions for contact with battery fluid.

- **External Contact:** Flush with water.
- **Eyes:** Flush with water for at least 15 minutes and get medical attention immediately!
- **Internal Contact:** Drink large quantities of water. Follow with Milk of Magnesia, beaten egg or vegetable oil. Get medical attention immediately!

IMPORTANT: In case of internal contact, DO NOT induce vomiting!

Terminals

Keep battery and its terminals clean. Inspect monthly to maintain best performance.

Remove corrosion from battery terminals and cable connections with a wire brush, then wash with a weak baking soda solution.

After cleaning, apply a thin coat of grease or petroleum jelly to terminals and cable ends to retard corrosion.

Electrolyte Level

Every 25 hours or each week check electrolyte level of each cell by removing caps one at a time. The electrolyte level should be at level indicator. Use distilled water to fill each cell if needed.

IMPORTANT: When distilled water is added to battery during freezing weather, it must be charged to mix water with electrolyte or water will remain at top and freeze.

Charging

Place unit on a level surface, shut off engine and open battery compartment (Figure 5).

1. Disconnect negative (-) cable first, then positive (+) cable.
2. Loosen wing nut and remove battery.
3. Place Battery on bench or other well ventilated place where electrolyte spill will not create damage.
4. Remove caps and fill each cell to level indicated with electrolyte at 1.265 specific gravity and 80°F (27°C).
5. Let battery stand for one half hour.
6. Check electrolyte level and add more if necessary.
7. Connect positive (+) lead of charger to positive (+) terminal, and negative (-) lead to negative (-) terminal.
8. Charge the battery at two and a half amps for ten hours or until all cells are gassing freely and the specific gravity is constant over three 30 minute intervals.
9. Immediately after charging, check electrolyte level. If low, add distilled water to bring cell up to required level.
10. Replace caps finger tight, wash off and dry battery.
11. Reinstall battery into unit and connect positive (+) cable first, then negative (-) cable.

ADJUSTMENTS

Discharge Chute Deflector

To adjust, loosen then retighten hardware to desired deflector drag force (Figure 5).

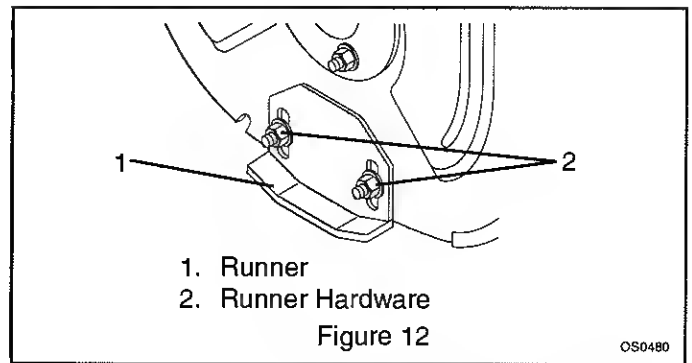
Deflector Remote

Adjust as required at clevis end and/or cap pivot cable end fitting.

Runners

Runners should be adjusted (Figure 12) as conditions require. Raising or lowering runners controls distance scraper blade (auger/impeller housing) is held above surface being cleared.

1. Position unit on a hard, flat, smooth level surface.
2. Adjust runners by inserting a spacer of desired thickness under center of scraper blade, loosen hardware, slide runners to flat surface. Allow 1/8" (3mm) between scraper blade and hard smooth surfaces. Allow 1-1/4" (30mm) between scraper blade and uneven surface(s). Retighten hardware.



NOTE: Keep housing level by adjusting runners equally. Uneven runners make unit difficult to steer and results in uneven clearing.

Scraper Blade

IMPORTANT: Damage to auger/impeller housing will result if blade wears down too far.

Scraper blade is adjustable to compensate for wear.

To adjust scraper blade:

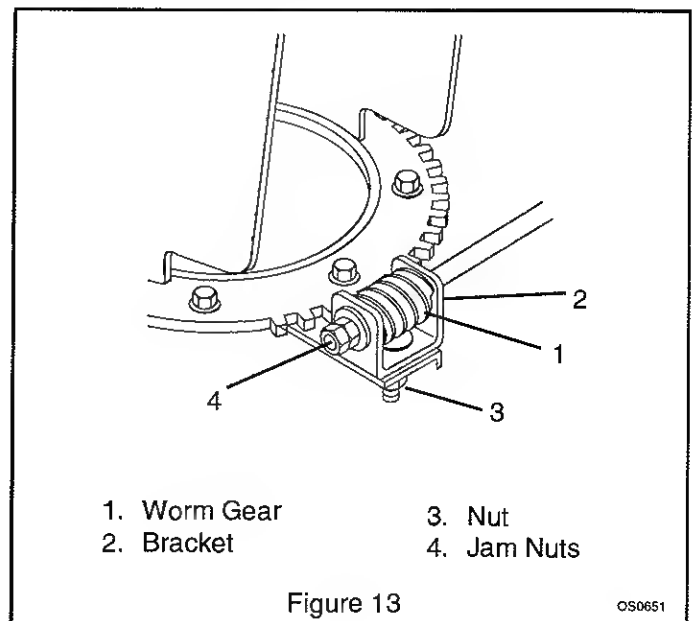
1. Tip unit back onto handlebar, support housing and loosen nuts retaining blade. With runners adjusted to their full up position, reposition scraper blade down, flush with runners, and tighten lock nuts.

Chute Crank

Smooth and easy rotation of properly lubricated chute with crank (without binding) is obtained by adjusting clearance between worm (Figure 13) and discharge chute gear teeth.

1. To adjust, loosen nut on bracket supporting worm, position worm to fully engage (without binding), gear teeth on discharge chute and tighten nut.

To prevent discharge chute from rotating by itself when unit is being operated, tighten jam nuts on end of crank rod to put increased tension on worm gear.



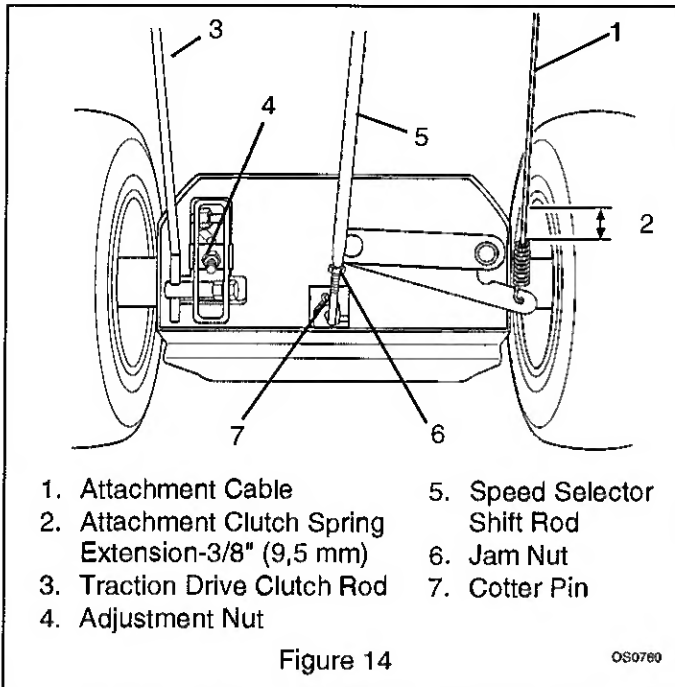
Attachment Clutch/Impeller Brake

WARNING

AUGER / IMPELLER MUST STOP within 5 seconds when Attachment Clutch / Impeller Brake lever is released or unit damage or serious injury may result.

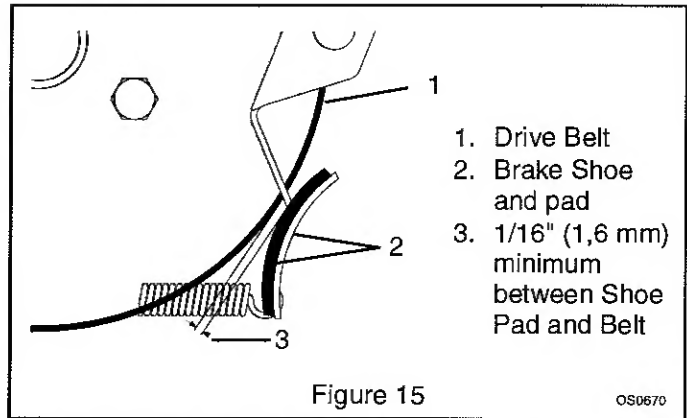
To Properly Adjust Attachment Clutch / Impeller Brake:

1. Remove belt cover. Adjust attachment clutch with both clutch lever and clutch arm in disengaged position. Spring should expand approximately 3/8" (9,5mm) beyond free state when clutch is engaged. Clutch arm at the lower end will then return to its maximum down position. When clutch is disengaged there should be a slight amount of slack in the attachment cable. There should be a slight amount of slack in the cable to allow for brake wear.



Spring extension is to be obtained only by proper positioning of the attachment idler.

2. Move the attachment idler toward the belt to increase spring extension. Approximately 1/8" (3,2 mm) movement of the idler will increase spring extension by 1/8" (3,2 mm). Spring should extend approximately 3/8" (9,5 mm) when clutch is engaged but allow clutch arm (at lower end) to return to its maximum down position when clutch is disengaged.
3. To check and/or adjust impeller brake, tip unit forward onto auger/impeller housing. Remove bottom cover by removing four cap screws.
4. Measure distance between impeller brake shoe pad and belt with attachment clutch engaged (Figure 15). Impeller brake shoe should be 1/16" (1,6 mm) minimum from belt. When attachment clutch is disengaged, brake must contact belt.



Traction Drive Clutch

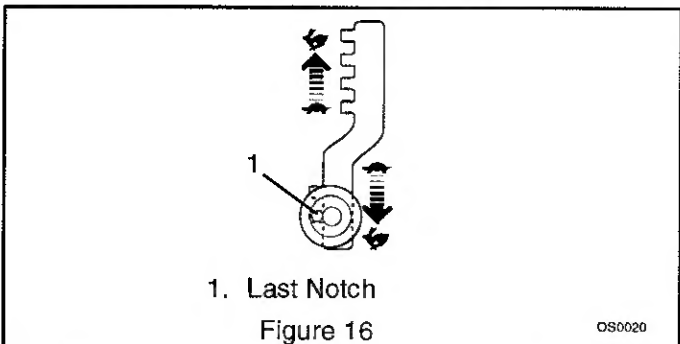
Adjust traction clutch to compensate for wear of friction wheel when slippage occurs.

To adjust traction clutch, place speed selector in First (1) Forward and tip unit forward onto housing.

With traction clutch disengaged turn wheels while tightening adjustment nut (Figure 14), at clutch yoke, until wheels begin to drag. Engage and release traction clutch to align clutch linkage. Repeat as necessary. When wheel drag is obtained with linkage aligned, turn nut back three turns. Wheels will then turn freely.

Speed Selector

1. Tip unit forward onto housing.
2. Remove cotter pin (Figure 14) and pull shift rod out of chassis until it stops, put speed selector lever into reverse panel notch. Two notches are available, place in last notch (Figure 16).
3. Adjust length of shift rod until rod end passes into hole on selector lever arm.
4. Tighten jam nut (Figure 14).
5. Install rod into arm hole and secure with cotter pin.



Drive Chain

Chain should be taut with little or no play in it. To compensate for looseness or excessive tightness in drive chain.

1. Remove bottom cover by removing four cap screws.
2. Loosen two nuts on reduction shaft (Figure 9), move reduction sprocket up or down equally in slot as necessary and torque the nuts to 14-15 ft. lbs. (18,6 - 20,0 Nm).

TRANSPORT

ALWAYS shut off unit attachment drive when transporting on truck or trailer.

NOTE: For transport of unit to or from area to be cleared, press down on handlebars enough to raise front of unit slightly off surface and engage wheel drive clutch without engaging attachment drive clutch.

CAUTION

Adjust auger/impeller housing (scraper blade) height to clear unpaved surfaces.

Disengage power to auger/impeller when unit is being transported in work area or is not in use.

DO NOT operate unit at high transport speeds on slippery surfaces.

ALWAYS use care when backing.

STORAGE

Unit

Run with Impeller Clutch engaged a few minutes after each use to free unit of any loose or melting snow.

Keep all nuts, bolts and screws tight and know unit is in safe working condition. Check all hardware at regular intervals.

Clean unit thoroughly and lubricate (see lubrication instructions). Touch up all unpainted areas to avoid rust and store in a cool, dry protected area.

IMPORTANT: NEVER spray unit with water or store unit outdoors to aid in prevention of rust or corrosion. Water can seep into sealed bearings, which are sealed against dirt and debris only, causing reduced component life.

Engine

When storing unit for extended periods of time, remove all fuel from tank and carburetor (run dry).

ALWAYS allow engine to cool before storage in any enclosure. Refer to Engine Manufacturer's instructions.

ACCESSORIES

See your authorized Ariens dealer to add the additional accessories available to your Sno-Thro.

Accessories:

71099700 ... Slicer Bar

72407500 ... Light












Be sure to always use genuine Ariens parts to keep your Sno-Thro running like new.

MAINTENANCE SCHEDULE

The chart below shows the recommended maintenance schedule that should be performed on a regular basis. More frequent service may be required due to working conditions (heavy loads, high ambient temperatures, dusty conditions, or airborne debris).

See Engine Manuals for further maintenance and trouble shooting information.

MAINTENANCE SCHEDULE

Service Performed		Intervals			
		Daily	5 	25 	100 
	<input checked="" type="checkbox"/> Fasteners	●			
	<input checked="" type="checkbox"/> Clutch Disengagement	●			
	<input checked="" type="checkbox"/> Engine Oil		●		
	<input checked="" type="checkbox"/> Auger Gearcase for Leakage			●	
	<input checked="" type="checkbox"/> Tire Pressure			●	
	General Lubrication			●	
	Replace Engine Oil		★	●	
	Clean Cooling Fins				●

★ First Maintenance Only

OS0750

TROUBLE SHOOTING

Problem	Probable Cause
Engine will not crank	<p>Check if Key Switch is in run position.</p> <p>Ignition switch starter circuit not functioning.</p> <p>Check for a bad starter or connections.</p> <p>Check for electrical problems.</p> <p>Battery discharged.</p> <p>Battery connections loose.</p> <p>Solenoid not functioning.</p>
Engine will not start	<p>Fuel tank is empty.</p> <p>Ignition switch in Off position.</p> <p>Build up of dirt and residue around governor/carburetor.</p> <p>Check for electrical problems.</p> <p>Check for engine ignition problems – See Engine Manufacturer's Service Manual.</p>
Engine stops	<p>Wrong carburetor adjustment.</p> <p>Mechanical jam in blower rake or impeller.</p> <p>Check spark.</p> <p>Check fuel supply. Use only clean fuel.</p>
Engine power, noise, idle and shut down	<p>See Engine Manufacturer's Service Manual</p>
Does not operate in Forward/Reverse	<p>Friction drive wheel is not adjusted properly.</p> <p>Drive belt is not functioning.</p>

SNO-THRO SPECIFICATIONS

Model Number	924318	924323	924324	924325	924326
Description	ST824	ST1024	ST1128E	ST1132E	ST1336E
Engine Tecumseh	HMSK-80-155641V	HMSK-100-159391W	OHSK-110-221702A		OHSK-130-223809B
Power Max - HP (Kw/min ⁻¹)	8 (5.97)	10 (7.46)	11 (8.2)		13 (9.7)
Max Rotation Speed - RPM (min ⁻¹)	3600				
Displacement - in (cc)	19.43 (318.3)	21.82 (357.5)	19.43 (318.3)		21.82 (357.5)
Electric Start 12V Key Start	No		Yes		
Fuel	See Engine Manual				
Tank Capacity - qt (Liters)	4 (3.8)				
Snow Clearing Width - in (cm)	24 (61.0)		28 (71.2)	32 (81.3)	36 (91.4)
Snow Throwing Distance - ft (meters)	3-30 (0.9-9.1)	5-35 (1.5-10.5)			
Chute					
Rotation Angle	230°				
Rotation Control at Handlebar	Yes				
Dual Handle Interlock	Yes				
Impeller					
Speed - RPM - Max (min ⁻¹)	1100				
Auger					
Diameter - in (cm)	15 (38.1)	16 (40.6)			
Speed - RPM - Max (min ⁻¹)	110				
Auger Brake	Yes				
Auger Clutch	Yes				
Drive	Disc-O-Matic				
Speeds	6 Forward and 2 Reverse				
Lock Out Differential	Yes				
Adjustment Skids	Yes				
Pneumatic Tires - in (cm)	4.80/4.00x8(12.2/10.2x20.3)		16/6.50x8 (40.6/16.5x20.3)		
Size and Weight					
Length - in (cm)	60 (152)				
Height - in (cm)	40 (101.6)				
Width - in (cm)	26.3 (66.6)		30.5 (77.6)		38.5 (97.8)
Weight - lbs (Kg)	265 (120)		303 (138)	318 (144)	341 (155)
CE Sound					
Oper. Ear Sound Pressure (L _{pa}) in dB _A	88.9	90	90	90	90
Oper. Sound Power (L _{wa}) in dB _A	104.8	103	101	101	103
Vibration Measure X	3.7	3.1	2.1	1.8	3.5
@ Operator Hands Y	4.3	3.5	3.1	2.6	2.9
Z	3.7	2.4	2.2	1.7	2.6

Ariens®

655 West Ryan Street • P.O. Box 157 • Brillion, WI 54110-0157 • 920-756-2141 • Fax 920-756-4421

